PROVIDENCE SEWACE TREATMENT SYSTEM,
ERNEST STREET PUMPING STATION ENGINE HOUSE
Ernest Street and Allens Avenue
Providence
Providence County
Rhode Island

HAER No. RI-20-A

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Mid-Atlantic Region
National Park Service
Department of the Interior
Philadelphia, Pennsylvania 19106

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HISTORIC AMERICAN ENGINEERING RECORD
PROVIDENCE SEWAGE TREATMENT SYSTEM:
Ernest Street Pumping Station, Engine House

HAER NO. RI-20-A

LOCATION:	Ernest Street and Allens Avenue Providence, Providence County, Rhode Island UTM:19.300780.462570 Quad: Providence, RI
DATE OF CONSTRUCTION:	1895-1896
ENGINEER:	J. Herbert Shedd
PRESENT OWNER:	Narragansett Bay Commission 44 Washington Street, Providence, RI
PRESENT USE:	In process of remodeling as a stand-by power generating facility.
SIGNIFICANCE:	The Ernest Street Pumping Station Engine House was the principal structure within the three-building complex constructed in 1895-6 to pump sewage directly to Providence's Fields Point Plant for treatment. As such it constituted a key element in the city's sewage collection and treatment system.

DESCRIPTION:

The Engine House is one of three structures, sharing a monolithic foundation of Portland cement concrete, that make up the Ernest Street Pumping Station (see also HAER No. RI-20-B and RI-20-C). The Ernest Street Pumping Station, as the name suggests, is located on Ernest Street in southeast Providence. The complex set below the level of surrounding streets within an irregularly shaped block bounded by Ernest Street, Allens Avenue, Terminal Road and Ellis Street, and lies less than one-half mile west of the Fields Point sewage treatment plant operated by the Narragansett Bay Commission. The station was built in 1895-96, and placed into service September 20, 1897 as a key element in the city's "improved sewerage" program. The station pumps raw sewage through an 88-inch main to Fields Point, where the sewage then enters the treatment process. In addition to the engine house, the station included a filth hoist house (HAER No. RI-20-B) and boiler house (HAER No. RI-20-C). The filth hoist house is located directly off the northwest corner of the engine house. The boiler house was situated to the north.

The engine house measures 48 feet by 90 feet (exterior dimensions) with walls rising 34 feet from grade to a steep, slate-shingled hipped roof. The exterior walls are constructed of red Barrington brick. Indiana limestone is used for the raised water tables, to create broad beltcoursing and wide modillion cornices, and for modified Gibbs surrounds on the windows and tall round-arched main entrance. That entrance is set in a slightly projecting frontispiece centered in the symmetrical, tripartite south elevation. The frontispiece rises to a small dormer with shoulder parapets. On the roof ridge of the engine house are two metal ventilators, and, set high on the north slope, a small triangular dormer serves the same function. Gutters, spouts, flashing and small finials are of copper.

The interior of the engine house is divided into two levels. The lower level, or substructure, features a barrel-vaulted corridor running along the south side, off which is a "gallery" of four deep, similarly-arched bays, in each of which is located a pump which discharges into the 88-inch main leading to the Fields Point Sewage Treatment Plant. The upper level (contained in the brick superstructure) consists of one large room, with painted brick walls, oak woodwork, and concrete floor inset with glass block. The tall window openings are fitted with 1/1 wooden double hung sash, surmounted by square transom lights. The high ceiling, plaster on metal lathe, encloses steel trusses that carry the roof.

Although this room was originally designed to contain four pumping units, only three were installed in August, 1896. These original units were vertical plunger pumps powered by direct-acting triple-expansion steam engines from the Holly Manufacturing Co. of Lockport, NY. The height of the room is a direct reflection of the space reguired to house these large steam engines, which were erected with the aid of a 10-ton travelling crane still present within the room. In 1910, the vertical plunger pumps were replaced with new pumps manufactured by Morris Machine Works; these were of a horizontal, double suction volute type with enclosed impellers. The Holly engines were retained, and made to power the pumps by means of rope drives from the flywheels. During the 1930's reconstruction of the Fields Point treatment plant, the original engines were replaced with diesel units, now numbering four, and new centrifugal pumps. The diesel motors were in turn replaced by electric motors in 1969, and the current pumps date from 1979.

HISTORICAL INFORMATION:

The engine house at the Ernest Street Pumping Station was built in 1895-6 for the purpose of pumping sewage collected from large areas of Providence to the Field Point plant for treatment and disposal. The need to include a pump station in Providence's "improved sewerage" program was recognized at the outset of planning, as indicated by City Engineer Samuel Gray's 1884 "Proposed Plan for a Sewerage System..." The reason was essentially topography: while some areas of Providence were at a sufficiently high elevation to permit collection and conveyance of sewage by gravity to the treatment plant proposed for Fields Point, other areas of the city lay below the 25-foot contour which Gray specified as the dividing line between the use of gravity and the need for pumping.

Designs for the engine house were generated in the office of the City Engineer under J. Herbert Shedd. The first contracts for the foundations were let in February 1895, and the pumps were first tested in December 1896 under the direction of Prelott W. Rounds, Chief Engineer in charge. The entire pumping station was formally placed in service on September 30, 1897. At that time, the plant at Fields Point was still under construction, and thus the city could not yet provide treatment for sewage. However, the system of interceptors was in place, so the Ernest Street pump station performed an interim service of discharging the collected waste into the harbor off Fields Point, thus providing "the long looked for relief from a large amount of filth in the river near

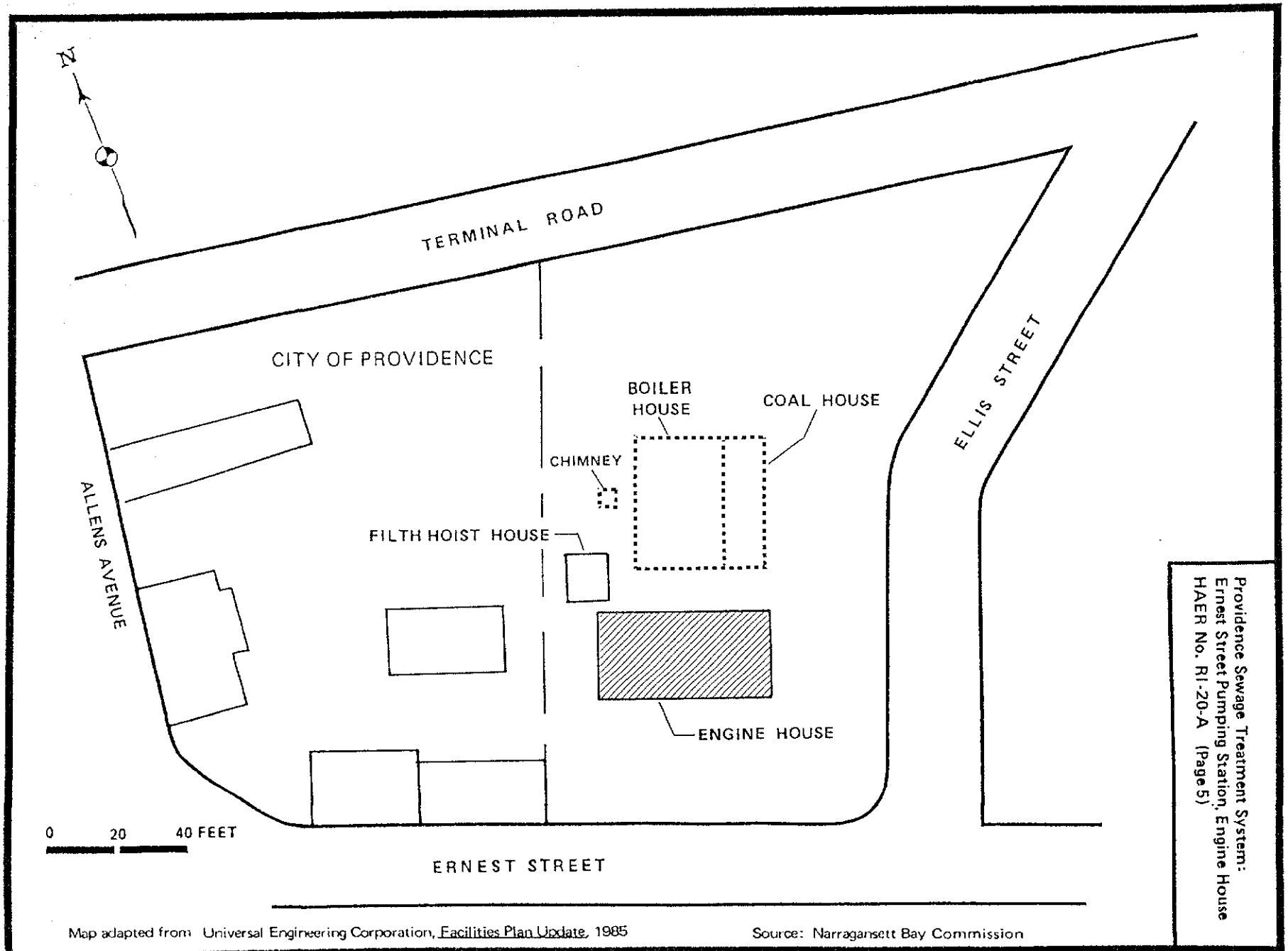
the centre of the city" (see Providence City Documents for the Year 1898, p. 10). With completion of Fields Point in April 1901, Ernest Street pump station began to pump directly to the facility, a function it maintained for 90 years, through several changes in machinery and equipment, and through periodic reconstruction of the original treatment plant to take advantage of new technologies and to meet the evolving sanitary needs of the city.

BIBLIOGRAPHY:

Pike, Lynne M. Historical Background of Ernest Street Pump Station. Ms on file at Narragansett Bay Commission, October 1985.

City Engineer, Providence. Annual Report for 1896.

Narragansett Bay Commission, Drawing Files: "Buildings for Ernest Street Pumping Station," three sheets dated August 1895; also FP-65, FP-79, FP-104, FP-146-149.



Map adapted from Universal Engineering Corporation, Facilities Plan Update, 1985

Source: Narragansett Bay Commission

Providence Sewage Treatment System:
Ernest Street Pumping Station, Engine House
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